

## Replacing a Water Pump

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You don't have to be a Brainiac to realize that a properly operating water pump is key to your engine's survival. Shaft leaks or a wobbly, loose and/or noisy hub indicate that a replacement is needed. Similar woes can also plague fan clutches, where excessive fore/aft play or simple non-operation are replacement indicators. Both units keep operating temperatures under control and prevent boiling fluids from blowing through cylinder head gaskets.

Most applications find the water pump mounted on the front of the engine, with a drive pulley attached to the pump hub. Either a V-belt or a serpentine belt usually drives the pulley. If so fitted, the fan clutch is mounted to the pulley with bolts through its flange. These instructions cover vehicles with conventional (i.e., front-to-rear-oriented) engines. Front-wheel-drive vehicles can be a tricky proposition because the engine is often mounted sideways, making belt access trickier and occasionally requiring removal of the timing chain. If this is your situation, assess your skills and have a professional mechanic do the job if needed.

Please read these guidelines before proceeding. Vehicle and service manuals should also be at hand.

### Stay Safe

Appropriate maintenance and service procedures will keep your car in the pink and you out of the emergency room. So whenever you're working on your vehicle, please do the following:

- Keep a first-aid kit nearby.
- Observe caution around sharp and hot objects; cars have plenty of them.
- Use safety ramps under the frame or jack stands if you find you must raise your car or truck.
- When running the engine, make sure the immediate environment is well ventilated.
- If you need to ingest nicotine while working on your vehicle, don't smoke; use nicotine gum, and you won't set things (such as yourself) on fire.

### Replacement

- Make sure the engine is cool.
- Disconnect the battery ground.
- Drain the cooling system (see instructions elsewhere on this site).
- If necessary loosen the alternator and other accessories at their mounting brackets in order to remove the drive belt(s).

- Disconnect the fan, pulley and fan shroud, if present.
- Remove brackets and accessories that interfere with removal of the water pump.
- Take off all hoses attached to the water pump.
- Loosening the bolts, remove the water pump.
- Clean the engine block's water-pump mounting area.
- Install a new gasket and sealer.
- Attach the new pump, torquing the bolts to spec.
- Reattach the water pump hoses.
- Reattach any removed brackets and accessories, along with the fan, pulley, shroud and drive belt.
- Adjust all belts to the proper tension.
- Fill cooling system with the recommended antifreeze/water mixture.
- Reconnect the battery ground.
- Start the vehicle and check for leaks.

#### Step 1



Notice how we conveniently solved access problems? Begin the job by disconnecting the battery's negative cable, draining the cool removing the belt and hoses and unbolting the fan and its shroud (if applicable).

#### Step 2



Remove the pulley.

### Step 3



Unbolt the existing water pump.

### Step 4



Clean the gasket area with a scraper and/or solvent. Use gasket sealant if the replacement pump's instructions specify.

### Step 5



Secure the new water pump and gasket per its instructions. Reverse the disassembly steps, tighten the belt to its proper tension, fill the radiator with the recommended coolant/water mixture, start the engine and check for leaks and squeaks.

### **Installation Tips**

- Make sure all of your supplies and tools are close at hand before starting the job.

- Take your time.
- A repair manual specific to your vehicle may provide valuable details that this article cannot address.
- If the car hasn't cooled adequately, wait, and in the meantime, beware of hot objects.
- You may find it valuable to make  
a drawing of the drive pattern  
of any drive belts to aid in their reinstallation.
- When removing the fan drive, setting it aside with the flange positioned upward will prevent fluid from leaking into its bearings.
- Do not overtorque bolts.

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